

Yeldener is a modular system that provides for low bit rate encoding and decoding of speech signals using voicing probability and determination (Abstract). Yeldener provides high quality voice reconstruction at low to very low bit rates on the basis of a voicing probability determination. (Yeldener Col. 3 lines 59-62.) In Yeldener, it is explained that transitions that fall within a single frame cannot be represented accurately (col. 19 lines 65-67). It is explained in Yeldener that:

“...one approach to satisfying this tradeoff is the use of frame-to-frame LPC interpolation. Generally, the idea is to achieve an improved spectrum representation by evaluating intermediate sets of parameters between frames, so that transitions are introduced more smoothly at the frame edges without the need to increase the coding capacity.” (col. 20 lines 18-23)

Yeldener makes use of information in neighboring frames in addition to that contained in a current frame to improve spectrum representation. In Yeldener, all frames must be present in order for the interpolation techniques to be effective. There is no suggestion in Yeldener that any of the frames are unascertainable – e.g. missing, corrupted, etc., and in fact Yeldener does not address the issues associated with unascertainable segments or frames.

#### Wang

Wang describes an improved loss recovery method for coding streaming media that classifies each data unit in the media stream as an independent data unit, a remotely predicted unit or a predicted data unit. Each is organized into independent segments having an I unit, multiple P units and R units interspersed among the P units.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations." (M.P.E.P. §2143: Basic Requirements of Patentability)

There is no basis to combine Yeldener and Wang

It is well established that, in order to support a rejection under 35 U.S.C. §103, sufficient motivation for combining the references to reach the combined motivation must be shown by the Examiner. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

The Examiner states, at page 3 of the Office Action: "... Yeldener ...does not explicitly teach tracking unascertainable (ie., missing, bad) audio segments, however, Wang ... teaches tracking lost data and recovering such lost data by estimating between the non-lost segments (col. 1 lines 5-25; and col. 2 lines 63-col. 3 line 5; examiner also notes that Wang ... teaches the use of this process for audio segments as well... Therefore it would have been obvious to one of ordinary skill in the art of audio signal processing to modify the teachings of Yeldener with lost frame tracking and recovery techniques as taught by Wang ... because it would advantageously improve data recovery without sacrificing bandwidth..."

Applicant's respectfully submit that the motivation suggested by the Examiner is not borne out by the references, as there is no desirability shown in the references for the

modification, as Yeldener specifically does not anticipate a loss of a signal. Yeldener states, at column 1, lines 56-61 "... Specifically, in ABS coding systems it is assumed that the signal can be observed and represented in some form... Then, a theoretical signal production model is assumed which has a number of adjustable parameters to model different ranges of the input signal" Thus, Yeldener, which assumes that the signal is always present, has no need for the proposed modification of the Examiner. Accordingly, for at least this reason, the rejection is overcome and should be withdrawn.

Combination neither describes nor suggests claimed invention

Claim 1 recites "...receiving a stream of Internet Protocol (IP) packets, each IP packet encoding one of a plurality of segments of the audio signal determining that a given audio segment associated with an IP packet that is missing from the stream of IP packets is not ascertainable, the location of the given audio segment within the audio signal being ascertainable, locating a set of consecutive audio segments in the audio signal, the set of consecutive audio segments *decoded from IP packets in the stream immediately preceding the given audio segment* and having a formant; ... removing the formant from the set of audio segments to produce a set of residue segments having a pitch ... processing the pitch and the set of residue segments to produce a new set of residue segments; and ... *adding the formant of the consecutive set of audio segments to the new set of residue segments to produce an output audio segment...*"

As pointed out above, and cited in the office action, Yeldener fails to teach or suggest a method for producing a new audio segment including a step of determining that a given audio segment is unascertainable. The Office Action suggests however that Wang teaches "...tracking

lost data and *recovering such lost data by estimating between the non-lost segments...*" The Office action further states, at page 5:

"... with respect to applicant's argument that "Wang does not teach 'recovering such lost data by estimating between the non-lost segments", examiner argues that Wang's 'falling back to some previously encoded reliable segment' is estimating between non-lost segments. If applicant's wish to differentiate between their own estimating function and Wang's then examiner suggests changing the claim limitations..."

Applicant's have amended claim 1, and the other independent claims, to recite the limitation of "the set of consecutive audio segments *decoded from IP packets in the stream immediately preceding the given audio segment* and having a formant " which clearly distinguishes over Wang.

Wang specifically states, at col. 6, lines 65- col. 7 line 6:

"... Each of the R type units provides a loss recovery point that is dependent on some other data unit, either R or I, which is transmitted with higher priority. Thus, if some P type units or even some R type units are lost, the decoder on the receiver only needs to select the next highest R or I type unit to recover from the loss..." Thus Wang uses the "next", unit of a given type, which is the opposite of the language of "preceeding" as stated in the language of the claims.

In addition, although the examiner states that Yeldener teaches the other language of the claims, Applicants assert that the steps of the claim serve to modify the 'given audio segment' which, as noted above, is the 'unascertainable' segment. Patentable weight must be given to these steps, and because Yeldener neither describes nor suggests the step of 'determining that a given audio segment is not ascertainable', *it is unclear to the Applicants how Yeldener can teach*

*the remaining steps of the claims, which operate on the 'unascertainable' segment. The Examiner has failed to respond to this argument by Applicant. In addition, Applicants note that specific functions and interrelations between claim elements are recited in the claim to rebuild the unascertainable segment which are not disclosed or suggested by Yeldener. For Example, Yeldener neither describes nor suggests "...locating a set of consecutive audio segments in the audio signal, the set of consecutive audio segments preceding the given audio segment and having a formant... removing the formant from the set of audio segments to produce a set of residue segments having a pitch ... processing the pitch and the set of residue segments to produce a new set of residue segments; and ... adding the formant of the consecutive set of audio segments to the new set of residue segments to produce an output audio segment.."*

Accordingly, because the combination of Wang and Yeldener neither describe nor suggest the elements of claim 1, the rejection has been overcome and should be withdrawn. Independent claims 11 and 21 include limitations similar to those put forth with regard to claim 1 and are allowable for at least the reasons put forth with regard to claim 1. Dependent claims 2-10, 12-20 and 22-31 serve to add further patentable limitations to their parent claims, and are allowable for at least the reasons put forth with regard to the parent claims.

### Conclusion

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Lindsay McGuinness, Applicants' Attorney at 978-264-6664 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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Date

Lindsay McGuinness  
Lindsay McGuinness, Reg. No. 38,549  
Attorney/Agent for Applicant(s)  
Steubing McGuinness & Manaras LLP  
30 Nagog Park Drive  
Acton, MA 01720  
(978) 264-6664

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